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Building an equitable and inclusive city through housing policies: Singapore's experience

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11 Building an equitable and inclusive city through housing policies

Singapore's experience

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> For each of them is very many cities but not a city, as those who play say. There are two, in any case, warring with each other, one of the poor, the other of the rich. And within each of these there are very many.
>
> –Plato (380 B.C.), *The Republic*, Book IV

1. Introduction

Inequality is an age-old concern. In recent years, the rise of income inequality has received worldwide media and policy attention, beginning with the Occupy movement of 2011–2012 and a wave of notable scholastic books such as Stiglitz (2012), Piketty (2014), and Atkinson (2015). Piketty's *Capital in the 21st Century*, an unlikely bestseller, contained a vast amount of data showing that the rich are taking rising shares of income and wealth in the advanced economies. Piketty's approach towards capital and wealth is an aggregative one, and he does not treat real estate or land as a different or distinct form of capital. He deals with neither spatial inequality nor the role of house price inflation in accentuating inequality. An aspatial approach leads to discussions about solutions to inequality focusing on aspatial aspects of higher income and wealth taxes, health and education policies, and labor market interventions such as minimum wages and universal basic incomes (Piketty, 2014; Atkinson, 2015; IMF, 2018).

National inequality data, however, mask considerable variations across cities within the *same* country. The biggest and most dynamic cities in a country also tend to have the highest housing prices, the highest concentration of housing wealth, and the largest income and wealth inequality gaps. Baum-Snow and Pavan (2013), Eeckhout et al. (2014), and Behrens and Robert-Nicoud (2014) have analyzed the link between city size and inequality. In an early review of Piketty's book, a careful study by Rognlie (2015) disaggregates capital and finds that, while the net capital share in developed economies has increased since 1948, this increase comes *entirely* from the *housing* sector. He therefore advocates that observers concerned about the distribution of income should keep an eye on housing costs.

Atkinson suggests that the most valuable asset for the majority of UK homeowners is likely to be their home, and increased housing wealth is a major

reason for the rise in popular wealth in the UK (Atkinson, 2015). Bastagli and Hills (2013) also present evidence of the importance of housing in wealth accumulation and wealth distribution for Great Britain. Using British Household Panel Survey data from 1995 to 2005, they show that changes in housing wealth heavily affected changes in wealth, with the highest percentage increase in housing wealth taking place in the middle of the distribution. Phang (2015, 2018) highlights the housing affordability problem in global cities and the role of homeownership policies in Singapore for mitigating income and wealth inequality.

Just as there is no reason the market will deliver a socially desirable distribution of income, there is no reason the market will deliver equitable housing outcomes and inclusive neighborhoods in cities. Households' preferences for local public goods, taxed goods, income, and race of neighbors tend to lead to divided cities: neighborhoods segregated by income (Comandon et al., 2018) and by race (Kucheva and Sander, 2018). Without appropriate policy intervention, we can expect the problems of inequality, housing affordability, unequal housing wealth distribution, and segregation by income and ethnicity to be accentuated and more visible in urban areas and even more so in large metropolises.

In several countries, historical factors and policies explain segregated neighborhoods. Land-use planning agencies and powers could also be overly fragmented and decentralized, resulting in resistance to mixed-use and/or higher-density developments. The not-in-my-backyard (NIMBY) behavior of homeowners and natural preferences for households to live among others with similar preferences and views contribute to income and racial segregation and social tensions in cities. As early as 1971, Nobel winner Thomas Schelling showed how a slight-but-not-malicious individual preference to avoid being in even a slightly minority status would quickly lead to completely segregated neighborhoods (Schelling, 1971). Schelling also studied how a neighborhood's racial composition could change suddenly, "tipping" from one situation to another after a critical mass was reached. More recently, Bishop (2009) and Florida (2017) have called attention to these urban challenges in their books, *The Big Sort* and *The New Urban Crisis*, respectively.

Intergenerational mobility, along with inequality, has received much attention in recent years. Cross-country studies show a well-known negative correlation between income inequality and intergenerational mobility that Krueger (2012) has termed "The Great Gatsby Curve" (Corak, 2013; Narayan et al., 2018). Chetty et al. (2014), however, find that for the US, despite the rise in income inequality in recent decades, overall intergenerational mobility has not changed significantly. Delving deeper, they find substantial variation in intergenerational mobility across geographical areas and identify racial and income segregation at the community level as a major factor that strongly correlates with mobility— i.e., the social prospects of children are dependent on the characteristics of the neighborhood in which they are raised. In particular, upward income mobility is significantly lower in areas with a larger African-American population (Chetty et al., 2018).

The deepening concern about inequality since 2014 has contributed to various international organizations developing global agendas to promote equity and inclusiveness, with a focus on cities. In March 2016, the Organisation for Economic Cooperation and Development (OECD) and Ford Foundation launched an "Inclusive Growth in Cities Campaign" to provide mayors around the world with a platform to exchange solutions to overcome urban inequalities.[1] The United Nations Habitat III conference, held in Quito in October 2016, set a "New Urban Agenda" to create sustainable, equitable cities for all.[2] A key focus of Habitat III was how to stop the widening inequality gap between the richest and poorest in many cities. In 2017, the Urban Land Institute released a new publication, *Building Equitable Cities*, that emphasized the importance of using place-based and people-based strategies to reduce income inequity, increase educational achievement, and reduce racial and ethnic segregation (Bowdler et al., 2017). The recently launched OECD study "Divided Cities: Understanding Intra-Urban Inequalities" (OECD, 2018) reports on how inequality and segregation play out across city neighborhoods by considering multiple cities in an international context.

The Habitat for Humanity CEO, Jonathan Reckford, rightly observed that housing is critical to equitable and inclusive cities: "With 60 percent of people worldwide projected to be concentrated in urban areas by 2030, developing sustainable communities that are inclusive and equitable for all will require creating affordable housing located near job opportunities" (Reckford, 2018). How can a city provide a supply of land and related infrastructure to "create affordable housing located near job opportunities" in a sustainable equitable way?

In the late nineteenth century, the American reformer Henry George proposed a solution to the above question. He observed that the explosive growth of industrial output in nineteenth-century America generated dramatic increases in urban land prices. The windfalls for landowners, in turn, fueled a frenzy of land speculation, real estate bubbles, and volatility. While industrialists, bankers, and landowners amassed enormous wealth in the Gilded Age, there was a simultaneous rise in poverty, inequality, economic crises, and social unrest. In 1879, George published a critique of the capitalist system in *Progress and Poverty: An Inquiry into the Cause of Industrial Depressions and of Increase of Want with Increase of Wealth; The Remedy*. His controversial proposed solution to the problems of inequality and crises was that land should be common property, society should share in any increase in land rents, and the tax on land value increases should be 100%.[3]

Singapore's work in building an equitable and inclusive city is extensive. While Singapore's focus on land is in line with George's views (Phang, 1996), there was no mention of George in the intense policy debates on land policy reform in the 1960s. The policy makers of that era recognized the huge importance of land to jump-start the economy and the housing program. Their observations on the unfairness of unearned land value increments, the negative impacts of land speculation, and the need for the state to capture land values mirrored those of George. However, the policies they implemented differed. This chapter on

Singapore's land and housing policies contributes to the discussions of alternative solutions to the challenges of urban inequality and divided cities.

Singapore is a rather unusual city—a densely populated city of 5.6 million people that happens also to be a country. All the physical spaces that are required for the normal functioning of a country (such as the needs of a military, port, airport, and reservoirs) have to fit into a city with a land area of 720 square km—slightly smaller than New York City and half the size of Greater London.[4] Devan (2018) highlights that 42–43% of land has been allocated for use by the military, and for gateways (airport and port) and manufacturing. At the same time, Singapore is also a global financial center, open to international capital flows and with almost 40% of the population comprising non-citizens (foreigners and permanent residents).

Given the unusual physical setting and land constraints of Singapore, the government has been acutely conscious of the limitations of the market to deal with the multiple complexities and competing demands for land efficiently and equitably. The extreme scarcity explains the obsessive policy attention to land policy and highly interventionist measures in the land, housing, and land transport sectors. Slums and squatter settlements were prevalent in Singapore in the 1960s at the time of its transition from a British colony to independence. The unemployment rate was estimated at 10% in 1965. The majority of the population lived in crammed conditions in pre-war shophouses and attap palm/zinc-roofed housing. It was under such dire conditions that the government made land and housing reforms, with the objective of improving housing conditions being a key priority.

After five decades Singapore's land and housing policies have produced some unusual outcomes compared to other cities of the world: 90% of the land belongs to the government, and 82% of the resident population live in high-rise apartments originally built by government agencies. The wholly state-owned Housing and Development Board (HDB) is Singapore's largest housing developer. As the HDB sells the bulk of its flats (on a 99-year leasehold basis), the resident population homeownership rate is unusually high—at 91% (see Figure 11.1). There are no poor neighborhoods, and ethnic quotas are used to manage the racial composition of blocks and HDB estates. This careful policy attention to land, housing, and social integration has contributed to social and political stability and economic development by creating "good places for Singapore citizens and residents to live and work, setting the infrastructure for people in Singapore to create a poster-child East Asia economic miracle of the late twentieth century" (Sargent, 2018).

The second section of this chapter presents data on income inequality and spatial measures of income and ethnic segregation in Singapore, comparing these statistics with cities in other countries. Section 3 provides an overview of the land, housing, and fiscal policies used to reduce the housing divide and to create mixed income and ethnically diverse neighborhoods. Looking ahead, the chapter concludes in Section 4 with a discussion of the current debates in Singapore on additional measures to mitigate economic inequality and to improve social mobility and integration.
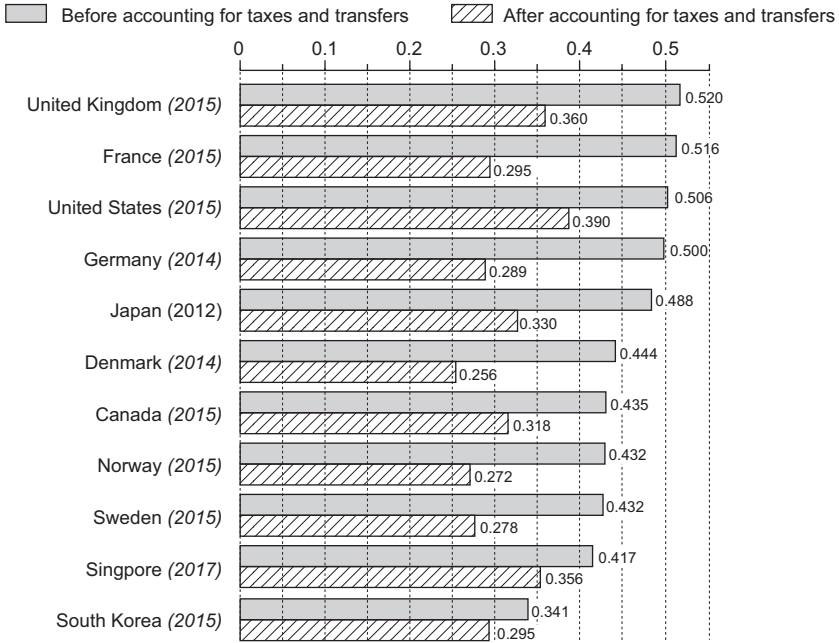
Figure 11.1 Homeownership rate.

Source: Singapore Department of Statistics and Housing and Development Board (HDB) websites.

2. Measures of inequality and segregation

2.1 Income inequality and housing wealth distribution

The Gini coefficient index is a widely used measure of income inequality. Most available Gini coefficients report figures over time for a given society before and after accounting for taxes and transfers. However, in using the coefficient for comparative purposes, researchers also have to be aware of the different methods and data used in its calculations. Variations in methodology include use of total income, income from work or wage data, inclusion or exclusion of unemployed and/or non-working households, inclusion or exclusion of foreigners, and use of incomes per household member or the OECD's method of adjustment for household size to account for economies of scale with regard to household expenditures.

Figure 11.2 shows the OECD international comparison of countrywide income Gini coefficients from the latest available data. While Singapore's 2017 Gini coefficient of 0.417, before taxes and transfers, is lower than most OECD countries, the Gini coefficient after taxes and transfers, at 0.356, is higher than most OECD countries (with the exception of the US and the UK). According

to the Singapore Ministry of Finance (2015), the smaller difference between the "before" and "after taxes and transfers" Gini coefficients for Singapore, compared to the OECD countries, reflects the lower tax burden in Singapore and its preference for providing targeted subsidies rather than large social transfers.

However, Gini coefficients for cities are typically much higher than the countrywide figures (Phang, 2015; 2018). Singapore's Gini coefficient (after taxes and transfers) is lower than the Gini coefficients of other global cities such as New York (0.504),[5] London (0.44), Hong Kong (0.40), and Paris (0.37). Devan (2018) suggests that this is in part due to Singapore's substantial manufacturing sector, which contributes 20% of GDP and provides a range of jobs in the middle, compared to other global cities with high-paying jobs in finance and banking at one end and low-paying jobs at the other. Moreover, Gini coefficients do not reflect income-net-of-housing costs, and local policies can make a vast difference to housing affordability, household consumption, and welfare.

Rising income inequality also leads to rising wealth inequality, which in turn drives income inequality. Piketty (2014) notes, "inequality of wealth is always and everywhere much greater than the inequality of income from labor" (pp. 306–307). High-income earners have higher saving rates, leading to growing concentration of wealth that contributes to higher capital incomes. Saez and
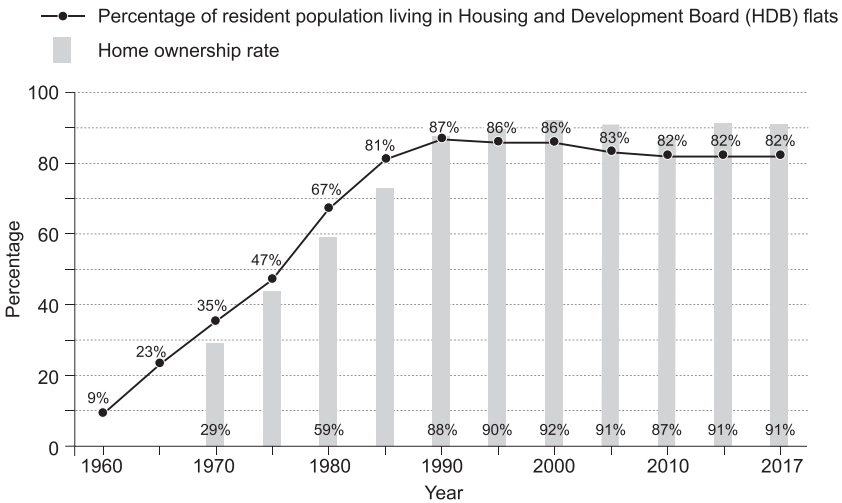
Figure 11.2 International comparison of income Gini coefficients.

Note: Singapore's Gini is based on resident household income from work whereas data on OECD economies is based on income from all sources (which includes non-work income from investments and property).

Source: Singapore Ministry of Finance, Parliamentary Reply on 'Before and After Taxes and Transfers – Singapore's Gini Coefficient', 19 Mar 2018. Access at: www.mof.gov.sg/Newsroom/Parliamentary-Replies/before-and-after-taxesand-transfers---singapore-s-gini-coefficient.

Zucman (2016) find that this "snowballing" effect has dramatically affected the shape of US wealth distribution over the last 30 years—the richest 10% of the population held 77% of the nation's wealth in 2012 compared to 65% in the mid-1980s, leaving less than a quarter of national wealth for the remaining 90% of Americans. Piketty (2014) acknowledges the difficulty of solving the wealth inequality problem:

> To my knowledge, no society has ever existed in which ownership of capital can reasonably be described as 'mildly' inegalitarian, by which I mean a distribution in which the poorest half of society would own a significant share (say one-fifth to one-quarter) of total wealth ... Of course, how one might go about establishing such an 'ideal society'–assuming that such low inequality of wealth is indeed a desirable goal–remains to be seen.
>
> Piketty, 2014, pp. 322–323

In Singapore, half a century of consistent housing policies has resulted in a high homeownership rate and more equitable distribution of housing wealth. House price appreciation over time has benefited homeowners in both the HDB and private housing sectors. Government data on household wealth for 2015 show that 80% of resident households that reside in the HDB sector have a share of 48% of gross housing wealth. Using average market prices by house type, Phang (2015; 2018) estimates the proportion of gross housing wealth owned by the bottom 50% of households in 2015 to be at around 25%.[6] In fact, based on the above estimates, Singapore's homeownership policies have resulted in gross *housing* wealth distribution approximating capital ownership distribution in Piketty's "ideal society."

2.2 Income segregation

Within cities, the spatial concentration of poverty is of increasing policy concern. Reardon and Bischoff (2016) provide evidence that even as income inequality has continued to rise in the US, income segregation in metropolitan areas has followed a similar rising trend since the 1980s. The proportion of families living in poor or affluent neighborhoods, used as one of the measures of income segregation, increased over time from 15.0% in 1970 to 34.3% in 2012. The proportion of families living in middle-income neighborhoods fell from 64.7% in 1970 to 40.5% in 2012. A 2018 study found income segregation to be the highest in the US among OECD countries, and lowest in cities in countries with low levels of overall inequality, such as Australia, New Zealand, Denmark, and the Netherlands (OECD, 2018).

A multiplicity of factors that affect how inclusive or segregated a city's neighborhoods are include zoning laws, housing policies, real estate factors, racial and ethnic composition, historical factors, and migration trends. The neighborhood where a child grows up can have long-term implications for his or her future (Chetty, Hendren, and Katz, 2016; Chetty et al., 2018; Wodtke, Harding, and

Elwert, 2011). Chetty et al. (2016) provide evidence for the US that moving to a lower-poverty neighborhood significantly improves college attendance rates and earnings for children who were young (below age 13) when their families moved. The gains from moving fall with the age at which children move, consistent with recent evidence that the duration of exposure to a better environment during childhood is a key determinant of an individual's long-term outcomes.

I now compare Singapore's income segregation patterns with US metropolitan areas to contrast the differences in the income composition of their neighborhoods. I use the dataset provided by the Singapore Department of Statistics for 28 planning areas that classify resident households into 18 income categories.[7]

First, following the classification used by the Stanford Center on Poverty and Inequality and by Reardon and Bischoff (2016), I compute the nationwide ratio of the mid-point of an income category to the 2015 median household income (S$8,666).[8] Based on this ratio, I classify each income category into six groups: affluent (r ≥ 1.50); high income (1.25 ≤ r < 1.50); high-middle income (1.00 ≤ r <1.25); low-middle income (0.80 ≤ r < 1.00); low income (0.67 ≤ r < 0.80); or poor (r < 0.67). Table 11.1 shows the distribution by household income in 2015 according to this classification. Thirty percent of households are classified as "affluent," with incomes at least one-and-a-half times greater than the median household income. Thirty-four percent of households are classified as "poor," with incomes less than two-thirds of the median.

I then compute for each of the 28 planning areas the ratio (r) of the area's median household income to that of Singapore's median household income. Based on this ratio, I classify each planning area as affluent (r ≥ 1.50); high income (1.25 ≤ r < 1.50); high-middle income (1.00 ≤ r <1.25); low-middle income (0.80 ≤ r < 1.00); low income (0.67 ≤ r < 0.80); or poor (r < 0.67). An affluent neighborhood thus defined therefore has more than half of the households with incomes at least one-and-a-half times greater than Singapore's median household income. A poor neighborhood has more than half of the households with incomes less than two-thirds of Singapore's median household income.

Table 11.2 shows the proportion of households residing in planning areas defined by their income for Singapore and contrasts these figures with those for US metropolitan areas (117 metropolitan areas with a population more than half a million). For 2015, although poor households comprise 34% of the Singaporean resident population, no planning area is categorized as "poor," and there is only one "low-income" planning area out of 28. While, nationwide, 30% of the population are classified as "affluent," there are only two "affluent" planning areas. This results in a low proportion of the population living in either "poor" planning areas or "affluent" planning areas: only 2.6% compared to the 34.3% figure for US metropolitan areas.[9]

There is a strong correlation between house types and household incomes in Singapore. Table 11.3 shows the average monthly household income from work for resident employed households by dwelling type for 2017. The composition of house types at the local level determines to a large degree the integration of

Table 11.1 Distribution of households by household income categories in 2015.

Income category (r = household income from work/median household ratio)	Number of employed resident households (1,000s)	% of total
Poor (r < 0.67)	373.9	33.8%
Low income (0.67 ≤ r < 0.80)	70.8	6.4%
Low-middle income (0.80 ≤ r < 1.00)	130.4	11.8%
High-middle income (1.00 ≤ r <1.25)	111.3	10.1%
High income (1.25 ≤ r < 1.50)	90.7	8.2%
Affluent (r ≥ 1.50)	329.4	29.8%
Total	1,106.5	100.0%

Source: Singapore Department of Statistics, General Household Survey 2015. Access at: www.singstat.gov.sg/publications/ghs/ghs2015content

Table 11.2 Proportion of families/households in low-, middle-, and high-income neighborhoods: US metropolitan areas > 500,000 and Singapore.

Income category	US metropolitan areas		Singapore
	2000	2012	2015[a]
Poor	15.2%	18.6%	0.0%
Low income	11.9%	11.0%	0.7%
Low-middle income	23.2%	18.9%	73.2%
High-middle income	23.9%	21.6%	18.7%
High income	13.1%	14.2%	4.9%
Affluent	12.7%	15.7%	2.6%
Middle income	47.1%	40.5%	91.9%
Poor + Affluent	27.9%	34.3%	2.6%

Note: Singapore 2015 numbers based on resident household income and household data for 28 planning areas.

Source: Reardon and Bischoff (2016, p. 7) for the US using family data; author's estimation using dataset from Singapore Department of Statistics, General Household Survey 2015. Access dataset at: www.singstat.gov.sg/publications/ghs/ghs2015content

households of different incomes. As the planning area is too large to capture local variations, I use 2017 population and house type data that are available at the subzone level. For 180 subzones (with populations above 2,000), I classify each subzone according to the median house type and compute the proportion of the population living in subzones as defined by the median house type.

While 20.8% of the resident population reside in private housing (see Table 11.3), 10.0% or less than half reside in predominantly private housing neighborhoods (see Table 11.4). There is only one neighborhood where the median house type is the HDB one- or two-room flat. Only 7.5% of the population reside in neighborhoods where the median house type is a three-room HDB flat. The majority (82.3%) of the resident population reside in "middle-income"

Table 11.3 Singapore: relationship between average household income and house type, 2017.

House type	Proportion of resident households	Average monthly household income from work (S$)	Ratio of household average income to median income of S$9,023
HDB 1- and 2-room flats	5.8%	$2,748	0.30
HDB 3-room flats	17.8%	$6,450	0.71
HDB 4-room flats	31.8%	$9,260	1.03
HDB 5-room and executive flats	23.5%	$12,554	1.39
Private housing: condominiums and other apartments	15.6%	$20,491	2.27
Private housing: landed properties	5.2%	$26,701	2.96
	100%	$12,027	1.33

Source: Singapore Department of Statistics (2017), Key Household Income Trends 2017, p. 34. Access at: www.singstat.gov.sg/find-data/search-by-theme/households/household-income/latest-data

neighborhoods where the median house type is either the HDB four- or five-room flat. Using "subzone" housing type data rather than "planning area" income data increases the degree of spatial segregation of "poor" and "affluent" to a score of 17.7%.

2.3 Ethnic segregation

In 2017, of Singapore's population of 5.61 million, 3.44 million were citizens, 0.53 million were permanent residents (PRs), and 1.64 million were foreigners. Singapore's resident population is a multi-racial, multi-cultural, multi-religious mix of Malay, Chinese, Indian, and Other. The ethnic composition of the resident population in 2015 was 13.3% Malays, 74.3% Chinese, 9.1% Indians, and 3.3% Other. The "Other" category included Filipinos, Caucasians, Eurasians, Arabs, Thais, and Japanese. In the 2015 General Household Survey, Buddhism was the most important religion, professed by 33.2% of the population; 18.5% of the population indicated they had no religion. Almost all Malays (99%) were Muslims, while the two main religions professed by the Chinese were Buddhism/Taoism (55.2%) and Christianity (20.9%), with 23.3% professing no religion. The religions professed by Indians included Hinduism (59.9%), Islam (21.3%), Christianity (12.1%), and Sikhism (4.3%).

Table 11.5 compares the socio-economic characteristics of the three main ethnic groups for 2015. The data indicate that Malay households had lower median household incomes and the lowest proportion of household heads with a university qualification (6%). A disproportionate number of Malay households (14.6%) reside in one- to two-room HDB flats, compared to the national average of 5.6%. While Indian households had a lower homeownership rate (84.1%), the proportion of household heads with university qualifications was significantly

Table 11.4 Proportion of population residing in low-, middle- and high-income neighborhoods, 2017.

Median house type	Number of subzones	Proportion of resident population living in subzone defined by median house type
HDB 1- and 2-room flats	1	0.2%
HDB 3-room flats	19	7.5%
HDB 4-room flats	77	54.5%
HDB 5-room and executive flats	36	27.8%
Private housing: condominiums and other apartments	33	7.1%
Private housing: landed properties	14	2.9%
Total	180	100%
Middle-income (HDB 4–5-room and executive flats)	113	82.3%
Poor (HDB 1- to 3-room flats) + Affluent (private housing)	47	17.7%

Source: Singapore Department of Statistics, Population Trends 2017. Access at: www.singstat.gov.sg/publications/population-trends

Table 11.5 Socio-economic characteristics by ethnic group, 2015.

	Population	Chinese	Malay	Indians
Proportion of resident households		74.3%	13.3%	9.1%
Median monthly household income (S$)	$8,666	$8,000– $8,999	$5,000– $5,999	$8,000– $8,999
Proportion of households with head of household with university education	28.2%	28.5%	6.0%	37.9%
Homeownership rate	90.8%	93.2%	87.0%	84.1%
Proportion of households residing in 1- or 2-room HDB flats	5.6%	4.4%	14.6%	6.6%
Proportion of households residing in 4- or 5-room and executive HDB flats	56.2%	56.0%	61.8%	55.8%
Proportion of households residing in private housing	19.5%	21.1%	2.5%	19.1%
Proportion of households with incomes S$20,000 and over	13.4%	14.3%	2.5%	13.6%

Source: Data from Singapore Department of Statistics, General Household Survey 2015. Access at: www.singstat.gov.sg/publications/ghs/ghs2015content

higher (at 37.9%) than the national average (of 28.2%). For all three races, the HDB four-room flat was the median house type as well as the most common house type, and more than half of households for all three races reside in middle-income housing defined as four- and five-room HDB flat types.

The presence of residentially segregated neighborhoods is a common feature of housing patterns in cities with ethnically diverse populations and large minority groups. In Singapore, however, other than in the historical areas of Kampong Glam, Chinatown, and Little India that have been designated as conservation areas, there are no obvious concentrations of minority groups in housing patterns.

The dissimilarity index of Massey and Denton (1988) can measure the spatial segregation of any one group from any other mutually exclusive group across the geographic units that make up a larger geographic entity. This index has a minimum value of zero, and the maximum value is 100. In a completely racially segregated city, the index would be 100; in a city where all neighborhoods have a racial composition identical to that of the entire city, the index will be zero. The formula for the index of dissimilarity is:

$$\frac{1}{2}\sum_{i=1}^{N}\left|\frac{a_i}{A}-\frac{b_i}{B}\right|$$

where:
a_i = the population of group A (e.g., Chinese) in the ith subzone
A = the total population in group A in Singapore (e.g., Chinese in Singapore)
b_i = the population of group B in the ith subzone (e.g., non-Chinese)
B = the total population in group B in Singapore (e.g., non-Chinese population in Singapore)

The summation is over the number of geographical units. The value of the index indicates the proportion of individuals from one of the specific ethnic populations (e.g., Chinese) who would need to relocate in order to obtain an even distribution of that population across all geographical areas.

For Singapore, I used data from the 2015 General Household Survey for which data on the ethnicity of resident population by 224 subzones are available. On average, each subzone has about 17,000 residents. I estimate the dissimilarity index to be 16.5% for the Chinese, 26.2% for the Malays, and 10.2% for the Indians—i.e., Indian households are the most dispersed, and Malay households are the most segregated. These levels of segregation are low compared to those of large cities in the US. For example, using census tract data, the 2010 segregation indices for New York-Northern New Jersey-Long Island were 78.0% for Black-White, 62.0% for Hispanic-White, and 51.9% for Asian-White.[10]

3. Land and housing policies for an inclusive singapore

US Supreme Court Justice Oliver Wendell Holmes, Jr. opined, "taxes are what we pay for civilized society, including the chance to insure."[11] To build an inclusive city, Singapore has gone significantly beyond taxes; it has utilized a suite of inter-related policies that encompasses land and housing legislation, land-use planning, land value capture, state housing developer and housing finance institutions, housing market regulations, taxes, and subsidies.[12]

It is not surprising that among a set of 33 advanced, emerging, and newly industrialized economies, the International Monetary Fund Index of Government Participation in Housing Finance Markets ranks Singapore number one on the list (IMF, 2011). Several of Singapore's land and housing policies are redistributive in their intent and impact. In this section, I provide a summary list of 15 policies that have contributed to a sustainable affordable housing framework and enhanced social inclusion.

1. *Government as dominant housing developer*: The HDB, established in 1960, is Singapore's largest housing developer. Seventy-three percent of Singapore's entire housing stock in 2017 is classified as HDB housing, and 94% of government-built flats have been sold at subsidized prices on a 99-year-leasehold basis to eligible households. Owners of subsidized flats may sublet bedrooms, and after a minimum period of occupancy, may rent or sell the flat for which there are active (albeit regulated) rental and resale markets. A resale levy amount of between S$15,000 and S$55,000 depending on flat type is payable to the HDB only if the owner buys a second subsidized flat from the HDB or a unit under the Executive Condominium Scheme.

2. *State land for housing*: The government has the power to acquire land from private landowners for economic development purposes, including for residential purposes. It undertakes reclamation of land from the surrounding seas, and the physical land area of Singapore has increased by about 24% since the 1960s. State land, as a proportion of total land area, grew from 44% in 1960 to 76% by 1985 and is estimated to be around 90% currently.

3. *Housing Provident Fund*: Singapore's pension system is based on defined contributions rather than defined benefits. Employees' enforced contributions and accumulated savings in their personal accounts with the Central Provident Fund (CPF) can be used for housing-related down payments and mortgage payments (but not for rental payments). In 2016, members (through their employers) deposited the equivalent of 8.7% of GDP into the CPF; withdrawals from the CPF for housing comprised 46% of contributions or about 4% of GDP (Phang, 2018). The CPF makes mortgage payments on behalf of members, thus reducing mortgage default risk.

4. *Availability of mortgage loans*: The government provides mortgage loans through the HDB for HDB flat purchasers at an affordable interest rate of 2.6%, regardless of borrower default risk—i.e., while there are subprime mortgages, the HDB does not charge subprime mortgage rates. HDB mortgage loans are for up to 25 years, with a loan-to-value ratio at 90%, and monthly installments capped at 30% of applicants' monthly income. Since 2003, commercial banks have been allowed to provide loans to buyers of HDB flats, and this has reduced the HDB's share of mortgage loans outstanding from 59% in 2000 to 17% by 2015. However, the HDB continues to be the most important lender in terms of number of mortgage loans. In 2016, of the 1.002 million CPF members who withdrew savings for housing mortgage payments, 52% had loans from the HDB (Phang, 2018).

5. *House price affordability*: The HDB prices its new flats for sale below the prices fetched by similar older units in the resale market. The government monitors housing affordability measures such as the price-to-income and mortgage payment-to-income ratios closely. To enhance housing affordability for lower-income households, the government varies the effective subsidy for each household according to household characteristics using housing grants. For a low-income household with monthly income below S$1,500, housing grants to purchase an HDB flat can be as high as S$80,000.

   The HDB's pricing has a redistributive impact as larger flat types purchased by higher-income households have higher per-square-meter prices (Phang, 2018). In 2017, the house price-to-median annual household income ratio for HDB flats in Sengkang Town was 1.9 for two-room flats (45 sq. m), 3.7 for three-room flats (65 sq. m), 4.7 for four-room flats (90 sq. m), and 5.0 for five-room flats (110 sq. m). The monthly mortgage payment-to-household-income ratio ranged from 7% for two-room flats to 25% for five-room flats. Price and mortgage affordability have resulted in high homeownership rates of 84% for the bottom 10% of the resident population (i.e., citizens and PRs) and 87% for the bottom 20%.

6. *Facilitating private housing supply*: The government revises the Concept Plan and the Master Plan for land use every 10 and five years, respectively. The process has allowed for changes and intensification of land use with economic and population growth (Phang, 2018). Under the Government Land Sales (GLS) program, the government sells land to private-sector developers with conditions tailored to achieve its planning and private housing supply objectives. Land prices are determined by a competitive tender process, with revenue from sales channeled into government reserves. In addition to private housing, the government also sells land for the public–private hybrid "Executive Condominium Scheme," which provides housing for couples with monthly household incomes below S$14,000. To facilitate redevelopment to higher densities, legislation was amended in 1999 to allow private collective (en bloc) sales for new housing developments to proceed without the need for 100% of owners to agree. The legal threshold percentage that will allow for collective sale for redevelopment is 90% for properties less than 10 years old and 80% for developments 10 years or older.

7. *Measures to prevent land speculation and hoarding:* The Singapore Land Authority has put in place measures to prevent the use of GLS sites for land speculation and hoarding. It specifies a project completion period as part of the tender conditions, and developers are required to pay a premium to extend the completion period. For non-GLS developments, foreign and listed developers are required to finish building their projects within five years of acquiring a site, and to sell all units within two years from project completion. To extend the deadlines would require payment of punitive charges at 8%, 16%, and 24% of the land purchase price for the first, second, and subsequent years, respectively, pro-rated to the proportion of unsold units.

8. *Segmentation of housing markets*: Residency status, household income, marital status, age, and current and previous ownership of properties determine eligibility to purchase specific types of housing (Phang, 2018). This set of criteria ensures that those of higher income and wealth do not "crowd out" households with lesser means. Foreigners are not eligible to purchase HDB housing, and a PR household with PR status for at least three years may buy an HDB resale flat. For citizen and PR households, each household is limited to owning only one HDB flat. The household income (monthly) ceiling is currently S$1,500 for a flat under the Public Rental Scheme; S$6,000 for a new two- or three-room HDB flat; and S$12,000 for a new four- or five-room HDB flat, for buying a resale flat with the CPF Housing Grant, or for obtaining an HDB concessionary loan. The income ceiling is S$14,000 to purchase a new Executive Condominium unit. There is no income ceiling for the purchase of an HDB resale flat.

9. *Regulating housing demand:* Since 2011, the government has acted to dampen demand for private housing by investors and foreigners through hefty buyer stamp duties that also serve as anti-speculation taxes. The latest July 6, 2018 round of demand "cooling" measures brings the Additional Buyer Stamp Duty (ABSD) payable for residential properties to 25% for corporate entities and 20% for foreigners. PRs pay 5% ABSD for their first property and 15% for their second and subsequent properties; citizens pay 12% for their second property and 15% for their second and subsequent properties. The ABSD is in addition to buyer stamp duty (of up to 4%) that is required on all transactions; there is a seller stamp duty (of up to 12%) for holding periods of less than three years to discourage speculation. There are also caps on loan-to-value, mortgage service, and total debt service ratios, as well as tenure of housing loans offered by commercial banks.[13]

10. *Progressive property taxes:* Property taxes in Singapore are a percentage of annual rental values. The residential property tax regime is progressive, with rates for owner-occupied housing starting at 0% (for annual values up to S$8,000) and rising to 16% (for annual values above S$130,000). Owner-occupiers of one- and two-room HDB flats are exempt from property taxes, and the rate for other HDB owner-occupiers is at the lowest tier of 4%. In 2017, three-room HDB flat owner-occupiers paid annual property taxes of up to S$18.40; four-room HDB flat owners paid between S$52 and S$100; five-room HDB flat owners paid between S$83.20 and S$131.20; and executive flat owners paid S$95.20 to S$143.20 (*The Straits Times*, November 28, 2016b). The property tax rate for non-owner-occupied housing ranges from 10% (first S$30,000) to 20% (above S$90,000).

11. *Transfers according to house types:* In 1994, the government began using house type as a proxy for household income and wealth for purposes of targeted transfers. The amount of rebates to offset the Goods and Services Tax (a consumption tax), waivers on HDB rents, and for HDB service and conservancy charges depends on house type. Other fiscal transfers such as CPF

top-ups and cash vouchers also use house type or house value to determine the amount of transfers.

12. *Integration of house types inside housing estates*: Spatially, the HDB has been able to integrate different groups across the income spectrum in its estates and new towns as it is the dominant housing supplier (Phang, 2018). With 80% of the resident population residing in HDB housing, there is no social stigma attached to public housing in Singapore. This fact also makes for more stable HDB communities as residents do not view a need to upgrade "out" of the HDB sector as incomes increase. There is a deliberate policy of providing for all flat types (generally ranging from one room to five rooms) in public housing estates. Blocks of different room types are mixed together when planning a precinct of about 2.5–3.5 hectares, considered of sufficient scale for different house types. Within each block, there is also mixing of successive unit types: two- and three-room, three- and four-room, and four- and five-room— i.e., between "socio-economic levels that are likely to be compatible with each other" (Liu and Tuminez, 2015; Wong and Yeh, 1985, for block plans). Private housing developments that are located within predominantly HDB areas also help to integrate residents in the two distinct housing segments.

13. *Ethnic integration policies*: Residential areas were highly segregated by race and Chinese dialect groups in colonial Singapore (Phang, 2018). In the 1970s, the HDB allocated new flats in a manner that would mix the different races in the new housing estates. However, when a trend of Malay ethnic regrouping through the resale market became evident in the 1980s, the government implemented an Ethnic Integration Policy in 1989, under which racial limits were set for the HDB blocks and neighborhoods.[14] These quotas (see Table 11.6) limit the proportion of flats in a block and in a neighborhood that can be owned by a particular race. When these limits are reached (the information is available online), those wishing to sell their HDB flats in the particular block or neighborhood are constrained to sell to another household of the same ethnic group. With the increase in non-citizens residing in the HDB sector over time, PR quotas were introduced in 2010, and non-citizen tenant quotas were implemented from 2014.

14. *Accessibility to facilities and public transport*: In the development of HDB towns, in addition to residential use, the HDB's planners plan simultaneously for the provision of comprehensive public facilities. HDB towns are transit-oriented developments; land-use planning provides for public transportation, bus terminals, and Mass Rapid Transit stations. The general land-use allocation in a new town includes playgrounds, car parks, shopping facilities, schools, parks and gardens, and sports and recreation. Institutional facilities include the town's administrative office, clinics, hospitals, community centers, and places of worship. In addition, space is allocated for fresh produce markets, cooked food centers, and commercial and industrial use in order to provide necessary amenities and employment for residents (Wong and Yeh, 1985; Cheong, 2017).

Table 11.6 Ethnic limits under the HDB's Ethnic Integration Policy.

	Resident population 2017	Neighborhood quota	Block quota
Chinese	74.3%	84%	87%
Malay	13.3%	22%	25%
Indian + Other	9.1% + 3.2%	12%	15%
PR homeowners		5%	8%
Non-citizen and PR tenants		8%	11%

Source: Singapore government and HDB websites. Access at: www.hdb.gov.sg/cs/infoweb/residential/buying-a-flat/resale/ethnic-integration-policy-and-spr-quota
www20.hdb.gov.sg/fi10/fi10296p.nsf/PressReleases/51A6512F14F32CC848257C6200226A1E?OpenDocument

15. *Access to schools*: Access to good schools is one of the most powerful factors for housing location choice in the cities of most countries. In the US, funding of local schools from local property taxes results in wide disparities in school quality that further reinforce patterns of income segregation.

    Singapore's education system enjoys a good international reputation, and students do well in global benchmarking tests for mathematics and science (*The Straits Times*, November 29, 2016a). In contrast to the US system, schools and educational institutions at all levels are heavily subsidized from the national budget. Citizens are required to enroll in a national primary school (at age six) for six years of free compulsory education, unless granted an exemption. The system ensures free access to high-quality primary education for citizens, regardless of income and housing location. A majority of primary schools thus admit children from all socio-economic and ethnic backgrounds, with 80% of primary schools having at least 5% of students from the top and bottom socio-economic quintiles (Ong, 2018). However, some primary schools, due to their history, alumni, and location in private housing estates, do have large proportions of students from higher-income groups. A national "Primary School Leaving Examination" sorts 12-year-olds into secondary schools based not on housing location, but on preferences, examination results, and primary school affiliation.

4. Current Singaporean debates for building a more inclusive society

Singapore has allocated an unusual amount of policy attention and resources to homeownership that has led to more equitable housing distribution, enhanced social stability, and reduced economic inequality. However, no system is perfect, and no society is static. There is always room for improvement. This concluding section therefore discusses some of the ongoing debates, concerns, suggestions, and recent policies to mitigate income inequality and promote social inclusion in Singapore.

First, Singapore's welfare policies have a strong bias towards using housing as the dominant channel of support to lower-income groups. This bias is apparent when compared with Australia, New Zealand, and countries in Western Europe that have more comprehensive welfare systems. However, while the provision of housing can encourage—and, in Singapore's case, has resulted in no small measure in—a more equitable and inclusive society, it is only one policy. Put simply, it may have to be complemented by reforms in other spheres. For example, there is no across-the-board legislated minimum wage and no unemployment benefits in Singapore. Instead, the government provides targeted public assistance based on assessment of eligibility and only when other forms of help have been exhausted.[15] Over the past decade, though, there has been a shift in government policies towards increased social expenditures in healthcare, education, and skills upgrading. Under the Progressive Wage Model, skill-based minimum wages were introduced in 2012 for citizens and PRs for the cleaning, security, and landscape sectors. Resisting calls for unemployment insurance, the government instead funds programs for training, skills upgrading, and lifelong learning, as well as providing cash and CPF payouts for older lower-wage workers.

Second, the government has identified aging and slowing social mobility as two big challenges facing Singapore. With one in four Singaporeans expected to be more than 65 years old by 2030, a growing number of households with a large proportion of their assets in illiquid housing equity will need to monetize their housing wealth for retirement financing. The government has put in place a number of schemes to facilitate this withdrawal. The subletting of rooms and renting out the HDB flat appears to be the most popular option. Downsizing to a smaller or shorter lease flat (elderly studio or two-room Flexi) presents another option. The Lease Buyback Scheme, under which the HDB buys back the tail end of the property's lease, and which allows for the elderly to age in place, has seen a low take-up rate of around 1% of eligible households (Phang, 2018). There is a need to explore additional options for housing wealth monetization, as a lack of channels may cause an increase in consumption inequality among the elderly.

Third, the evidence on intergenerational mobility in Singapore is mixed. Ng (2015) finds intergenerational mobility to be moderately low in Singapore and postulates that mobility will be increasingly challenging given that certain characteristics of the current education system (streaming at the secondary school level and the costs of university education) reinforce immobility. In contrast, Yip (2012) and a 2015 study by the Ministry of Finance judge intergenerational income mobility to be moderate to relatively high compared to other countries such as the US, Japan, the UK, and Denmark. In the past year, Singapore's president, as well as several high-ranking public policy makers, have highlighted the need for policies to mitigate inequality and improve social mobility, with education and building inclusive neighborhoods identified as important strategies.[16]

Fourth, within the housing system, the homeownership bias has resulted in a marginalized public *rental* housing scheme. To discourage rental as a tenure choice, the HDB has limited rental flats available to smaller flat types and has not changed the low monthly income ceiling of S$1,500 since 2003. HDB

neighborhoods have rental and owner flats located in separate blocks, and there were several years (1982 to 2006) in which no rental blocks were built (Ng, 2018a). In 2015, 3.7% of resident households resided in HDB one- and two-room rental flats, of which 32.1% comprised Malay households. In contrast to homeowners, tenants have not benefited from the across-the-board housing price appreciation over the decades. Vasoo (2018) has noted the re-emergence of ethnic ghettoes in one- to two-room HDB neighborhoods as a problem that needs to be addressed. In a fundamental policy change, the HDB began integrating rental and sold flats within the same block in its new building projects from 2014 (*The Straits Times*, May 17, 2018a).

Fifth, neighborhood diversity, may not, in and of itself, translate into social cohesion.[17] Other than the HDB rental–owner housing divide, a 2017 survey on social networks highlighted the divide between those from "elite" and "neighborhood" schools, and between residents of public and private housing.[18] Respondents in the survey were able to name network members from different racial, religious, and nationality groups. However, social networks across "elite" and "neighborhood" schools and across public and private housing were significantly weaker than the networks within groups.[19] To promote social mixing across housing types, the prime minister announced the creation of a new form of grassroots organization, the Residents' Network, in July 2018. Existing local Residents' Committees that currently serve HDB estates, and Neighborhood Committees that cater to private housing estates, may continue as they are or rename themselves, or neighboring committees can merge to form a single Resident Network (*The Straits Times*, July 21, 2018c).

Finally, within Singapore, a few groups do not benefit from the housing welfare system. The HDB's definition of a family nucleus, for purposes of eligibility for its housing schemes, excludes single, unwed mothers and their children. Although the number of children born out of wedlock is not high (2.2% of resident births in 2015), this deliberate policy of exclusion reflects Singapore society's preference to preserve the traditional norm of "parenthood within marriage" (*The Straits Times*, November 29, 2017b).

On another front, official statistics on income, wealth, households, and housing provide data on the resident population (citizens and PRs), but they exclude the large number of foreigners. In 2017, there were 1.37 million foreigners working in Singapore, comprising 37.4% or more than one-third of the total labor force. Foreigners working in Singapore are categorized by type of work pass and the sector they work in. Of the 1.37 million foreigners in the labor force, 14% held an employment pass and 14% a mid-level skilled pass (S-pass). The employment pass holders mostly reside in private housing, and Singapore ranks among one of the most expensive cities in the world for expatriates (*The Straits Times*, June 26, 2018b).

At the other end of the income spectrum, almost one million foreigners working in Singapore hold work permits that allow for neither dependent privileges nor the prospect of future residency. In 2017, 18% of foreigners working in Singapore were female foreign domestic workers; 53% worked in the

construction, manufacturing, marine shipyard, process, or services sectors. While domestic workers reside with their employers, other work permit workers (more than 700,000) reside in purpose-built dormitories, approved workers' quarters in industrial areas, and as multiple occupancy tenants in HDB and private housing. The increased visibility of low-wage foreign workers from several different countries residing in local residential areas has given rise to some concerns among resident households.[20] In 2014, the HDB introduced non-citizen tenant quotas in its housing estates; there are also regulations on rental occupancy limits and on eligibility of work permit workers to rent HDB housing based on nationality (Malaysian/non-Malaysian) and employment sector.[21] At the same time, the government regularly reviews housing standards and conducts inspections across all types of foreign worker accommodations (Ng and Neo, 2018).

The problems and new challenges discussed in this section, however, should not detract from Singapore's significant core achievements in making homeownership affordable and in building an inclusive society for the vast majority of its resident population.

Notes

1 Information on OECD inclusive growth agenda may be found at: www.oecd.org/inclusive-growth/
2 Information on Habitat III's "New Urban Agenda" may be found at: http://habitat3.org/the-new-urban-agenda/
3 O'Donnell (2015) provides an account of the ideas of Henry George and shows how these remain relevant to our present times.
4 Singapore's land area was 582 square km in 1960. Through expensive reclamation of land from surrounding waters, the land area has increased by 24% since the 1960s.
5 Florida (2017, p. 83) provides data on Gini coefficients for US metropolitan areas: New York-Northern New Jersey-Long Island (0.504); San Francisco-Oakland-Fremont (0.475); Chicago-Naperville-Joliet (0.468).
6 The analysis of housing wealth distribution in Singapore was motivated by Piketty's concern that "inequality of wealth is always and everywhere much greater than the inequality of income from labour." Piketty presents data for the US, which shows that in the early 2010s the top decile owned 72% of America's wealth, while the bottom half's claim was just 2%. In France, the richest 10% owned around 62% of national wealth, and the poorest 50% owned less than 4% (p. 257). In his view, this unequal ownership of capital is a prime driver of income disparities.
7 Singapore Department of Statistics General Household Survey 2015, Table 152, Resident Households by Planning Area and Monthly Household Income from Work. Access at: www.singstat.gov.sg/find-data/search-by-theme/population/geographic-distribution/latest-data
8 References to dollars in this chapter refer to the Singapore Dollar (S$). The exchange rate in July 2018 was approximately US $ 0.73 to S$1.
9 Low income: Outram; high income: Bishan, Marine Parade, Novena; affluent: Bukit Timah and Tanglin; the other 22 planning areas are classified as either low-middle income or high-middle income.

10　University of Michigan Population Studies Centre Racial Residential Segregation Measurement Project. Access at: www.psc.isr.umich.edu/dis/census/segregation2010.html

11　The quote is from Justice Oliver Wendell Holmes, Jr.'s dissenting opinion in the 1927 court case of Compañía General de Tabacos de Filipinas v. Collector of Internal Revenue.

12　Refer to Phang (2018) for detailed discussion and analyses.

13　For details of measures and changes over time, refer to www.srx.com.sg/cooling-measures

14　The Singapore government acknowledged the influence of Thomas Schelling in the formulation of the Ethnic Integration Policy (Dodge, 2006, p.142).

15　Ng (2018b) describes Singapore as a "residual welfare model" that creates barriers to access with huge administrative costs, while Haskins (2011) regards Singapore's social policy as "a crucible of individual responsibility."

16　Singapore's president, prime minister, deputy prime minister, and minister for education have given speeches or interviews on inequality and social mobility in 2018.

17　Putnam (2007) provides evidence for the US that trust (even of one's own race) is lower, altruism and community cooperation rarer, and friends fewer in ethnically diverse neighborhoods.

18　The Institute of Policy Studies at the National University of Singapore conducted a face-to-face survey in 2016 of 3,000 respondents to measure social capital. The methodology and findings may be accessed at: http://lkyspp2.nus.edu.sg/ips/wp-content/uploads/sites/2/2017/11/Study-of-Social-Capital-in-Singapore_281217.pdf

19　See Ong (2018) for Education Minister Ong's proposals for education policies in the next phase to address the inequality challenge.

20　In 2008, residents of a private housing estate petitioned their Members of Parliament to appeal against a proposed plan by the government to convert an unused school in their neighborhood into a foreign worker dormitory facility. See Shaw and Ismail (2010) and Baey (2010) for discussions of the Serangoon Gardens "uproar." De Koninck (2017, p. 46) identifies the locations of 42 of these foreign worker dormitories, with the largest of these nearly all-male "proletarian towns" providing more than 10,000 beds each.

21　Since November 7, 2006, non-Malaysian work permit holders from the construction sector have not been able to sublet HDB flats or rooms. This regulation was extended to the marine and process sectors on May 1, 2015. Since January 2017, non-Malaysian work permit holders from the manufacturing sector are not eligible to rent a whole HDB flat and can only rent rooms. Only non-Malaysian work permit holders in the service sector can rent whole flats (*The Straits Times*, January 24, 2017a).

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